
IN THE UNITED STATES DISTRICT COURT
DISTRICT OF UTAH, CENTRAL DIVISION

3FORM, INC., a Utah corporation,

Plaintiff,

v.

LUMICOR, INC., a Washington corporation,

Defendant.

**MEMORANDUM DECISION AND
ORDER GRANTING LUMICOR'S
MOTION FOR SUMMARY JUDGMENT**

Case No. 2:12-cv-00293-CW

Judge Clark Waddoups

INTRODUCTION

This case is before the court on 3form, Inc.'s ("3form") Motion for Partial Summary Judgment, (Dkt. No. 45), and Lumicor, Inc.'s ("Lumicor") Motion for Summary Judgment, (Dkt. No. 48). There has been no Markman hearing. Instead, the parties opted to address the issue of claim construction simultaneously with their motions for summary judgment. A hearing was held on the motions and the matters were taken under advisement. For the reasons set forth below, the court GRANTS Lumicor's Motion for Summary Judgment, and DENIES 3form's Motion for Partial Summary Judgment.

BACKGROUND

3form and Lumicor are competitors in the manufacture of decorative laminate panels for use in architecture and interior design. The disputes in this case concern panels made of thermoplastic sheets that contain embedded objects. 3form argues that certain Lumicor products infringe two of its patents: U.S. Patent No. 7,008,700, "Architectural laminate panel with

embedded compressible objects and methods for making the same,” (“the ‘700 patent”), and U.S. Patent No. D621,068, “Architectural panel with thatch reed design,” (“the ‘068 patent”).¹

Lumicor counterclaims seeking a declaratory judgment of noninfringement and invalidity on the ground that both patents are anticipated and/or obvious in light of its own earlier patent, U.S. Patent No. 6,743,327, “Solid surface products,” (“the ‘327 patent”), alone or in combination with other prior art references.

Decorative panels with embedded objects have historically been made by pouring “liquid acrylic around the desired objects, and then solidifying the acrylic into a hardened panel.” ‘700 patent, col. 2:26–28; *see also* ‘327 patent, col. 1:27–31. A set of patents filed by Michael Eckart and Raymon Goodson (“the Eckart patents”) from 1995 to 1998, and assigned to Eastman Chemical Company, demonstrate that this can also be accomplished through a single pressure lamination process. All of the Eckart patents call for the use of polyethylene terephthalate glycol, generally known as PETG, and the application of a pressure ranging from about 40 to 500 psi. The embedded objects can be: “a polymeric film with a high resolution printed thereon,” U.S. Patent No. 5,643,666; “a printed or colored film layer having opposed surfaces wherein at least one of the surfaces is colored or has an image printed thereon,” U.S. Patent No. 5,894,048; “a fabric comprised of textile fibers selected from cotton, wool, silk, rayon, polyesters, synthetic polyamides, acrylic, modacrylic and cellulose acetate fibers,” U.S. Patent No. 5,958,539; “metallic wire, rod and/or bar,” U.S. Patent No. 5,998,028; and “a film which is colored or which bears an image or pattern,” U.S. Patent No. 6,025,069.

¹ The Lumicor products accused of infringing the ‘700 patent are: “Zito (Spring and Autumn versions, including those designated as ‘Light’), Serengeti, Kenya, Savannah, Pampas Reed, Birch, Rainforest, Madagascar (standard and fade), Ginko Reed, Tortoise Reed.” (Dkt. No. 48-2, p. 35; *see also* Dkt. No. 2, ¶ 14). Those accused of infringing the ‘068 patent are: “Spring Zito and Autumn Zito panels . . . (including ‘Light’ versions).” (Dkt. No. 48-2, p. 41; *see also* Dkt. No. 2, ¶ 25).

Lumicor's '327 patent was issued on June 1, 2004, and is the first to instruct on the use of two pressures (40 psi and 160 psi) to embed decorative objects ("a dry material selected from the group consisting of textile fabric, paper, plastic film, plastic sheet, metallic wire, rod, mesh, bar, wood veneer, dried natural materials, tree bark, plant leaves, petals, and twigs") between two plastic resins ("polymethylmethacrylate, polyvinyl chloride, and polycarbonate"). *See* '327 patent, claims 1 & 2. While the '327 patent application claims the benefit of a provisional application filed on July 25, 2001, Lumicor concedes that the provisional application did not disclose the use of two pressures, and as such, that the earliest priority date that can be claimed is the patent's filing date of March 25, 2002.

The '700 patent also uses a plurality of pressures to embed objects (organic materials like thatch, bamboo, tree or bush branches or stems, willow reed, leaves, beans, and inorganic materials like rock, glass, and other types of minerals) between two extruded resin sheets (made of PETG, polycarbonate, and related copolyesters), which retain a substantial natural conformation despite the fact that one of the applied pressures, if used independently, would result in an unnatural conformation. The application for the '700 patent was filed on April 9, 2004, but was provisionally rejected by the PTO examiner on multiple grounds, including that it was either anticipated or obvious in light of the Eckart and '327 patents.

3form appealed the rejection and distinguished the cited art. With respect to Eckart, 3form argued that the only compressible object cited was textile fabric, which is essentially a two-dimensional, i.e. flat, object rather than a three-dimensional object. With respect to the '327 patent, 3form argued that the prior disclosed objects were either two-dimensional (textile fabric, mesh, wood veneer); rigid and non-compressible at 160 psi (metallic wire, rod, mesh, bar, wood veneer, textile, or tree bark); or, in the case of the remaining objects that could be considered

compressible (plant leaves, petals, or dried twigs), “would be significantly flattened to a primarily two-dimensional conformation” that did not “preserve the given object’s respective natural cross-sectional diameter(s) [at the recited pressures].” (Dkt. No. 48-2, p. 136). The PTO subsequently issued the ‘700 patent on March 7, 2006. For purposes of priority, the ‘700 patent is argued to be a continuation-in-part of application No. 10/465,465, filed on June 18, 2003. The ‘068 patent was filed on March 20, 2009 and has an issue date of August 3, 2010. It concerns a specific design using thatch reeds on the type of panels made following the ‘700 patent. Although the ‘068 patent cites to various other related documents, including the ‘700 patent, 3form does not currently contest that the ‘068 patent is entitled to a priority date no earlier than April 9, 2004.

ANALYSIS

Summary judgment is appropriate “if the movant shows that there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law.” FED. R. CIV. P. 56(a). “A ‘material fact’ is one which could have an impact on the outcome of the lawsuit, while a ‘genuine dispute’ of such a material fact exists if a rational jury could find in favor of the non-moving party based on the evidence presented.” *Chasteen v. UNISIA JECS Corp.*, 216 F.3d 1212, 1216 (10th Cir. 2000). “Only disputes over facts that might affect the outcome of the suit under the governing law will properly preclude the entry of summary judgment. Factual disputes that are irrelevant or unnecessary will not be counted.” *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986).

Since an invalid patent cannot be infringed, considerations of judicial economy dictate that the court address the question of validity before making any determinations of infringement. The Patent Act grants issued patents a presumption of validity. *See* 35 U.S.C. § 282. This presumption applies to each claim of a patent, independent of the validity of other claims, and regardless of

whether a claim is independent, dependent, or in multiple dependent form. *Id.* Accordingly, Lumicor has the burden of proving invalidity by clear and convincing evidence. *Microsoft Corp. v. i4i Ltd. P'ship*, 131 S. Ct. 2238, 2242 (2011). A determination of validity first requires that the court construe any disputed claims. *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313 (Fed. Cir. 2002). In the second step, the court then addresses whether “the claims as properly interpreted are met by the prior art.” *Id.* (quoting *Beachcombers, Int'l, Inc. v. Wildewood Creative Prods.*, 31 F.3d 1154, 1160 (Fed. Cir. 1994)).

I. '700 PATENT

A. Claim Construction

Claim construction is a question of law for the court to decide. *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 387 (1996). This inquiry starts with the language of the claims themselves, which “define the invention to which the patentee is entitled the right to exclude.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (quoting *Inova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)). Because they are part of a fully integrated document, claims “must be read in view of the specification,” *Id.* at 1315 (quoting *Markman v. Westview Instruments, Inc.*, 52 F.3d, 967, 979 (Fed. Cir. 1995)), which “is the single best guide to the meaning of a disputed term.” *Id.* at 1315 (quoting *Vitronics Corp. v. Conceptoronic*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). In addition to consulting the specification, the court must also consider the patent’s prosecution history, which “consists of the complete record of the proceedings before the PTO and includes the prior art cited during the examination of the patent.” *Id.* at 1317.

There is a presumption that the words of a claim are generally given their ordinary and customary meaning, as would be understood by a person of ordinary skill in the art in question at

the time of the invention. *Id.* at 1312, 1320. However, “a definition of a claim term in the specification will prevail over a term’s ordinary meaning if the patentee has acted as his own lexicographer and clearly set forth a different definition.” *3M Innovative Props. Co. v. Avery Dennison Corp.*, 350 F.3d 1365, 1371 (Fed. Cir. 2003). In determining whether a patentee has acted as his own lexicographer, the court must analyze whether a statement was intended to define the terms as used in the specification and claims or whether it was intended to describe or apply only to a preferred embodiment. *LG Elecs. Inc. v. Bizcom Elecs., Inc.*, 453 F.3d 1364, 1374 (Fed. Cir. 2006), *rev’d on other grounds sub nom Quanta Computer, Inc. v. LG Elecs., Inc.*, 553 U.S. 617 (U.S. 2008). *See also E-Pass Techs., Inc. v. 3COM Corp.*, 343 F.3d 1364, 1369 (Fed. Cir. 2003). In making that determination, the court must consider the context in which the definition is used as well as the parameters used by the patentee.

A patentee is required to set forth his claims with sufficient definiteness so as to point out and distinctly claim the subject matter which the inventor regards as the invention. 35 U.S.C. § 112(b). To fulfill this requirement, “[t]he claims, when read in light of the specification and prosecution history, must provide objective boundaries” for those skilled in the art. *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1371 (Fed. Cir. 2014). Where a patent’s claims fail to inform those skilled in the art about the scope of the invention with reasonable certainty, the patent will be found to be invalid for indefiniteness. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2124 (2014).

With those principles in mind, the court now turns to the disputed terms, as indicated in italics. Claim 1 of the ‘700 Patent states:

A decorative architectural panel comprising: one or more *compressible objects* suspended between two extruded resin sheets formed together about the one or more *compressible objects* using a plurality of pressures in a thermosetting process, at least one of the plurality of pressures being greater than or equal to a

critical pressure sufficient to otherwise compress the one or more *compressible objects* to an *unnatural appearing conformation*; wherein the one or more *compressible objects* maintain a *substantially natural appearing conformation* between the two formed resin sheets.

This claim contains all disputed terms and is a representative example of how they are used in the remaining claims.

1. “*compressible objects*”

This term appears in independent claim 1 and in dependent claims 8, 10–12, 17–18.² 3form contends that “compressible objects” should be construed as “Three-dimensional objects with a critical pressure of up to approximately 80-92 psi, depending on the extruded sheet materials, related temperatures and pressures, including, but not limited to, objects such as thatch, willow reed, straw, coffee beans, twigs, bamboo and similar objects.” (Dkt. No. 45-1, p. 29). Lumicor argues that 3form’s proposed interpretation is unduly lengthy, cumbersome, and improperly reads concepts from the specification into the claims. Lumicor argues that because the term uses ordinary words, a person of ordinary skill would understand that “compressible objects” means “An object that is capable of being flattened under pressure.” (Dkt. No. 55, p. 23).

In the patent, 3form provides an express definition of the term: “As used herein, ‘compressible objects’ refers to three-dimensional objects that substantially deform at pressures up to 80–90 psi.” ‘700 patent, col. 4:33–35. The definition appears in a section entitled “Detailed Description of the Preferred Embodiments.” Thus, as required by *LG Elecs., Inc.* and *E-Pass*, the court must determine whether the definition “as used herein” is intended to apply just to the preferred embodiment or to the claims and specifications as well. In the very next sentence, the patent reads, “That is, each ‘compressible’ object can be thought of as having a ‘critical

² “Three-dimensional object” is used in independent claim 19, rather than “compressible object.” The parties do not appear to argue that this term needs to be construed or has any meaning different from its ordinary meaning. The court finds that the term has its ordinary meaning and does not require construction.

pressure.” *Id.* at 35-36. To understand the meaning of compressible objects one must also understand critical pressure. The two concepts are intrinsically linked. The patent then continues, “For the purposes of this specification and claims, ‘critical pressure’ refers to the pressure at which the structural integrity of the object collapses” *Id.* at 36-39. Thus, the patentee expressly states that the term is to apply, not just to the preferred embodiment, but to the specification and claims.

The context in which the definition is provided makes this conclusion clear. Within that same paragraph, the specification adds a further clarification that “for extruded PETG materials, compressible objects will be understood as having a critical pressure of up to approximately 92 psi using conventional thermosetting processes.” *Id.* at 51–54. The phrases “As used herein” and “will be understood as,” together with the term being set off by quotation marks, provide clear evidence that the patentee intended these definitions to be used to define his invention. Moreover, earlier in the patent, the patentee distinguishes his invention by comparing its application to prior art applied to “fairly rigid three-dimensional materials, such as crushed glass or rocks that can withstand the conventional pressure (80 psi or greater).” *Id.*, col. 2:1-5. The patentee continues: “It would be impossible, however, to embed compressible objects (i.e. relatively soft objects, such as objects that would flatten at pressures of 80 psi or greater), such as thatch, willow reed, straw, coffee beans, twigs, bamboo, and so forth, having any measurable diameter, in extruded sheets using the pressure of conventional processing methods. In particular, compressible natural objects would not carry their natural appearance in the final decorative laminate panel since they would be flattened under conventional pressure.” *Id.* at 5-13. From this discussion it is clear that the inventive idea was to apply the technology to “soft” objects within a range of psi. This range of pressures is used throughout the specification, not just in describing a preferred embodiment.

Indeed, the so-called description of the preferred embodiments focuses primarily on the type of laminate and the application of the process rather than on the pressure range for compressible objects. Finally, 3form itself proposes a definition that is cabined by the pressure ranges set forth in the definition used in the patent. The additional language 3form proposes either does not relate to the inherent structure of the object or provides examples, which by their very nature are not definitional. The court concludes that the express definition provided in the patent was intended to apply to both the specification and the claims, not just to the preferred embodiment. *See Sinorgchem Co. v. ITC*, 511 F.3d 1132, 1136 (Fed. Cir. 2007). “As such, the patentee must be bound by the express definition.” *Id.* Moreover, reading the patent as a whole and in context, the court concludes the same definition is the correct definition for compressible objects as used in the claims, even if the patentee intended it only to apply to the preferred embodiment. Absent the pressure parameters, the patent would not provide sufficient boundaries for one skilled in the art to meaningfully understand the scope of the claimed invention and what other practices would be excluded. The court therefore construes compressible objects to mean three-dimensional objects that substantially deform at pressures up to 80–92 psi.

2. “critical pressure”

This term appears in independent claims 1 and 19, and dependent claims 8, 10–11. As discussed above, it is also expressly defined in the specification, stating that “For the purposes of this specification and claims, ‘critical pressure’ refers to the pressure at which the structural integrity of the object collapses, such that the object splits, cracks, or otherwise compresses into an unnatural conformation.” ‘700 patent, col. 4:36–40. That definition is the same as 3form’s proposed construction. For the same reasons stated above the court concludes that the express definition was also intended to apply to the claims. Lumicor presents no construction and

contends that the term is ambiguous because it calls for a single pressure at which an object collapses into an unnatural conformation. This is something that Lumicor believes is a subjective judgment call, given that an object may experience some discernible flattening and still retain a natural conformation. There is no argument that splitting or cracking are ambiguous. Accordingly, because unnatural conformation is also a disputed term which the court found amenable to construction, Lumicor's objections on the basis of ambiguity are rejected. The term "critical pressure" is construed to mean the pressure at which the structural integrity of the object collapses, such that the object splits, cracks, or otherwise compresses into an unnatural conformation.

3. "*unnatural appearing conformation*"; "*unnatural conformation*"; "*unnatural appearance*"

This term appears in independent claims 1 and 19, and in dependent claims 11 and 12. 3form contends that it should be construed as "The appearance of an object when its structural integrity collapses, such that the object splits, cracks, or substantially deforms." (Dkt. No. 45-1, p. 32). Lumicor accepts most of 3form's proposed construction, but contends that "significantly" should be used instead of "substantially." (Dkt. No. 55, p. 24). While Lumicor concedes that "an object that is split or cracked has become unnatural in its appearance," it reiterates the argument that the amount of flattening in the absence of cracking required to convert an object from a natural to an unnatural conformation is indeterminate and maintains that the word substantially only serves to magnify that ambiguity. *Id.* Since it agrees that "this term would be understood to exclude small or minor degrees of deformation," it contends that "significantly deforms" is more consistent with the specification. *Id.* In the end, Lumicor concludes that no construction can resolve the inherent ambiguity in this term.

The court again notes that this term is expressly defined in the specification, which states that “an ‘unnatural conformation’ may mean that an object has compressed to 90% of its thickness in one direction, 75% of its thickness in one direction, and so on.” ‘700 patent, col. 4:42–45. The specification defines an unnatural conformation solely in terms of compression, with some sort of collapse envisioned. *Id.* at 47–48. Both 3form and Lumicor incorrectly contend that an unnatural conformation also includes splitting and cracking, but that is explicitly foreclosed by the use of commas to denote a series, together with the disjunctive “or otherwise” directly preceding the term “unnatural conformation.” *See id.* at 36–40 (“‘critical pressure’ refers to the pressure at which the structural integrity of the object collapses, such that the object splits, cracks, **or otherwise** compresses into an unnatural conformation.”) (emphasis added). Absent a reference point, it is impossible for the court to determine the line between what is natural and unnatural. In order to resolve the ambiguity, the court limits construction of the term to at least its stated range. *See* ‘700 patent, col. 4:42–45. Accordingly, the court construes this term to mean an object that has compressed in an amount equal to or greater than 75% of its thickness in one direction.

4. “*substantially natural appearing conformation*”; “*substantially natural conformation*”

This term appears in independent claims 1 and 19. 3form proposes that this term be construed as “The appearance of an object in a relatively uncompressed or natural state, even if not perfectly natural or uncompressed.” (Dkt. No. 45-1, p. 33). Lumicor contends that the term is insolubly ambiguous and proposes no construction. This is the only disputed term not explicitly defined in the specification. The court concludes, however, that this term is defined by exclusion. Because anything that falls outside of the 75% plus compression range cannot be unnatural, it

must necessarily mean that it is natural. As such, the court construes the term to mean any conformation where the object has experienced compression of less than 75% of its thickness in one direction.

B. Anticipation

Novelty is a prerequisite for patentability. 35 U.S.C. § 102. Where the claimed invention “was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention,” it is said to be anticipated and therefore invalid. *Id.*; see also *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008). “It is well settled that a claim is anticipated if each and every limitation is found either expressly or inherently in a single prior art reference.” *Celeritas Techs., Ltd. v. Rockwell Int’l Corp.*, 150 F.3d 1354, 1361 (Fed. Cir. 1998). And while “those elements must be arranged or combined in the same way as in the claim, the reference need not satisfy an *ipsisimilis verbis* test.” *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009). It is also necessary that the prior art reference “enable one of ordinary skill in the art to make the invention without undue experimentation.” *Impax Labs., Inc. v. Aventis Pharms. Inc.*, 545 F.3d 1312, 1314 (Fed. Cir. 2008). “Anticipation is a question of fact, including whether an element is inherent in the prior art.” *In re Gleave*, 560 F.3d at 1334–35. “If an inventor seeks to claim an advantage or modification that flows *necessarily* from a prior art reference, the reference inherently anticipates the inventor’s claim,” *Glaxo, Inc. v. Novopharm, Ltd.*, 830 F. Supp. 871, 874 (E.D.N.C. 1993) (emphasis added), *aff’d*, 52 F.3d 1043 (Fed. Cir. 1995), “even if the advantage was not appreciated by the inventor of the prior art.” *Id.* Furthermore, “[i]n order for a claim to be inherent in the prior art it is not sufficient that a person following the disclosure sometimes obtain the result set forth in the claim, it must invariably happen.” *Id.* “Whether a prior art reference is [thus] enabling is a question of law based

upon underlying factual findings.” *Minn. Mining & Mfg. Co. v. Chemque, Inc.*, 303 F.3d 1294, 1301 (Fed. Cir. 2002).

1. Independent Claims 1 and 19

a. Claim 1

Claim 1 of the ‘700 patent is anticipated. Its limitations are: (1) a decorative architectural panel, (2) with a compressible object(s) (such as reed and bamboo) suspended between two extruded resin sheets, (3) which are formed together about the object(s) using a plurality of pressures in a thermosetting process, (4) at least one of the plurality of pressures being greater than or equal to a (critical) pressure sufficient to otherwise compress the object(s) to an unnatural appearing conformation, (5) wherein the compressible object(s) maintains a substantially natural conformation between the two formed resin sheets. ‘700 patent, col. 11:1-13.

The ‘327 patent expressly discloses the following limitations: (1) An architectural panel (“A flat non-porous unitary solid surface structure,” for “kitchen countertops and decorative architectural surfaces or facades”) with “a visible decorative object,” ‘327 patent, col. 1:9-15, 66-67, (2) with twigs from reed and bamboo (which are undisputed compressible objects), *Id.*, col. 8:32-33, which are suspended between two polymeric sheets, *Id.*, col. 3:8-19, (3) where heat is applied to the lay up sandwich, whereby the first and second polymeric sheets melt together to provide a unitary product, *Id.*, col. 3:24-32, applying first 40 psi and then later 160 psi (i.e. a plurality of pressures), *Id.*, col. 9:14-29.

The remaining limitations are also inherent in the ‘327 patent: (4) a critical pressure, whereby 160 psi is greater than the pressure required to unnaturally conform the disclosed reeds and bamboo, and (5) that this process used with compressible objects will always produce a product which maintains their substantially natural conformation within two formed resin sheets.

The concept that objects compress under some critical pressure was not invented by 3form and is inherent in all objects. 3form's expert admitted that all objects, even hard objects like steel, are compressible given an appropriate amount of force.³ (Dkt. No. 63-1, p. 16:6-20). This inherent property of all objects is a law of nature not subject to patentability by 3form, *see Bilski v. Kappos*, 561 U.S. 593, 611 (2010), though it is also a law of nature applicable to the '327 patent. Furthermore, 3form did not invent a method for measuring the amount of force required to deform an object until it appears unnatural. *Id.* (noting that the application of a law of nature to a product or process may be patentable). Instead, it is inevitable that when subjected to an appropriate amount of force, all objects will become deformed. *See Glaxo, Inc.* 830 F. Supp. at 874.

During the process of sandwiching decorative objects between two layers of plastic resin, the '700 patent limitations (4) and (5) disclose that at some point an undefined amount of pressure will be applied that would otherwise be high enough to compress an object, such as a reed, to the point where it is compressed too much to appear natural. Given that all objects inherently deform at some pressure, for the '327 patent to anticipate the '700 patent requires the use of one pressure high enough to definitively deform anticipated objects such as reeds and bamboo, and the use of another pressure that will not. Inherency does not require that the patentees realize that something is inherent; what matters is that here, the '327 patent explicitly discloses the pressure of 40 psi (which does not compress reeds and bamboo to an unnatural conformation), and 160 psi (which always will). '327 patent, col. 9:13-38. Therefore, even though the exact words "critical pressure"

³ Notwithstanding that both parties focused argument on softer objects typically thought of as compressible, the court notes that both the '700 patent and the '327 patent disclose three-dimensional hard objects typically thought of as noncompressible as examples of decorative materials each party's process could incorporate, such as "rock, glass, other types of minerals" '700 patent, col. 7:16-23, and a variety of metals in shapes including rods and cables. '327 patent, col. 8:37-47.

and “unnatural conformation” were not used, the ‘327 patent inherently anticipates those concepts.

The final question regarding limitation (5) is whether the process set forth in the ‘327 patent always enables the production of a panel with a substantially natural conformation. Although someone using the processes in the ‘327 patent might “sometimes obtain” architectural panels with compressible objects which maintain their substantially natural conformation within two formed resin sheets, to inherently anticipate, such panels must “invariably happen.” *See Glaxo Inc.*, 830 F. Supp. at 874. *Glaxo* underscores how predictable a prior art process must be to anticipate a product claim. 52 F.3d 1043. In *Glaxo*, the defendant’s experts performed a process “thirteen times and each time they made” the claimed product. *Id.* at 1047. But the fact that plaintiff’s experts “could yield” a different result following the same process meant inherency was inapplicable. *Id.* at 1047-48.

Here, the record shows that with the exception of the tests performed by 3form’s expert, Jeffrey T. Gotro, Ph.D., every single panel produced utilizing the procedure set forth in the ‘327 patent resulted in a substantially natural conformation. (Dkt. No. 50-7, pp. 15-16). While the court acknowledges that this is evidence that the ‘327 patent methods “could yield” such panels, 3form failed to produce evidence to show that any nonconforming product could be produced using the ‘327 patent methods. The Gotro tests, which are the only evidence cited by 3form to dispute that the ‘327 patent always produces a panel with a substantially natural conformation, are either inadmissible due to unreliability or, even if admissible, failed to use the process taught in the ‘327 patent and are thus irrelevant.

Under Federal Rule of Evidence 702, “A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or

otherwise if: . . . the expert has reliably applied the principles and methods to the facts of the case.” Gotro failed to reliably apply the principles and methods to the facts of this case. When he produced panels with deformed objects and bowed polymer, he failed to follow the ‘327 patent methods.

First, Gotro’s test applied too high a temperature for the specific resin used. (Dkt. No. 57-2, p. 13). The ‘327 patent clearly teaches, both descriptively and in specification sheets for each resinous material, that an appropriate temperature must be applied to the corresponding material. ‘327 patent, cols. 5-9. Gotro admitted that a person ordinarily skilled in the art would have used the temperature outlined on the spec sheet for the given material, (Dkt. No. 63-1, p.4:13-16, “one skilled in the art would know that heating a polymer too hot is going to cause degradation of the polymer. That’s known.”), and that the method he used ignored that principle. *Id.* at 10-13 (“I mean, I don’t know that a person of ordinary skill in the art would -- I mean, if they look at the data sheet, they would say the temperature was -- the melt – the softening point is low, so they would adjust it,” p. 12:17-21, and “Q. So a person of ordinary skill in the art wouldn’t use the acrylic melting temperatures when trying to make a PETG laminate panel; right? . . . A. Correct.” p. 13:2-6).

Second, Gotro’s test also failed to track the time at which the higher pressure and temperature were held. *Id.* at 6-7, “Q. Did you track temperature over time? A. . . .So we didn’t actually track it with a data log, no,” p. 6:5-19, and “Q: So you don’t have any idea how long the test took? You didn’t keep that data? A. No.” pp. 6:25-7:3). Furthermore, Gotro did not personally know how long the higher pressure and temperature were held because he did not perform the tests nor was he there when the tests were performed. *Id.* at 7:22-8:3. The ‘327 patent specifically states a duration of 1 to 6 minutes, depending on thickness. ‘327 patent, col. 9:35-37.

Finally, Gotro’s test consisted of a two-step process wherein a high pressure (between 120 psi and 160 psi) was applied at a low temperature (195°), following which the same high pressure (between 120 psi and 160 psi) was applied at a higher temperature (235°). (Dkt. No. 57-2, p. 13). By contrast, ‘327 specifically teaches that a lower pressure (40 psi) should be applied at the lower temperature relevant to the resinous material used. ‘327 patent, col. 9:4-54. Because Gotro’s tests did not apply the relevant teachings of the ‘327 patent, they are unreliable and inadmissible pursuant to Rule 702. Even if the tests were admissible, however, the evidence he produced is irrelevant to dispute that the use of the process set forth in the ‘327 patent will always produce a panel with a substantially natural conformation because he did not follow that process.

Thus, claim one of the ‘700 patent is anticipated and invalid because the court finds clear and convincing evidence that limitations (1), (2), and (3) were expressly anticipated by the ‘327 patent, and limitations (4) and (5) were inherently anticipated by the ‘327 patent.

b. Claim 19

Claim 19 of the ‘700 patent is also anticipated. It is a restatement of claim one’s limitations in a different order, with the addition of the phrase “the image layer” to refer to the layer of decorative objects between the top and bottom layers of resin. The following chart compares the limitations of claim one with claim nineteen:

Claim 1	Claim 19
(1) A decorative architectural panel comprising: (2) One or more <i>compressible objects</i> suspended between two extruded resin sheets (3) formed together about the one or more <i>compressible objects</i> using a plurality of pressures in a thermosetting process,	(1) A decorative architectural resin panel comprising: (2) first and second extruded resin sheets formed together with a (3) plurality of pressures, (4) at least one of the plurality of pressures being greater than a critical pressure at which one or more

Claim 1	Claim 19
<p>(4) at least one of the plurality of pressures being greater than or equal to a critical pressure sufficient to otherwise compress the one or more <i>compressible objects</i> to an unnatural appearing conformation;</p> <p>(5) Wherein the one or more <i>compressible objects</i> maintain a substantially natural appearing conformation between the two formed resin sheets.</p> <p>'700 patent, col. 11:2-13</p>	<p>(2),(4) <i>three-dimensional objects</i> ordinarily collapse to a substantially unnatural conformation;</p> <p>and an image layer</p> <p>(2) positioned between the first and second extruded sheets that are</p> <p>(3) formed together,</p> <p>the image layer</p> <p>(2),(5) comprising the one or more <i>three-dimensional objects</i> in a substantially natural conformation; wherein the one or more <i>three-dimensional objects</i></p> <p>of the image layer</p> <p>(4),(5) maintain an appearance of the substantially natural conformation despite having been subjected to the critical pressure.</p> <p>'700 patent, col. 12:36-52</p>

Given the essentially identical claims, and because each party argued the two claims identically, the same analysis that applies to the limitations in claim one applies to the limitations in claim nineteen. The court does note, however, that the italicized terms “compressible objects” and “three-dimensional objects” are equivalent, consistent with its claim construction of the term “compressible objects” as “*three-dimensional objects* that substantially deform at pressures up to 80–92 psi.” *See supra*, Part A1. Finally, the addition of the phrase “the image layer” in claim nineteen is insignificant as both parties and the court understood the term to refer to the layer of decorative objects between two sheets of resinous material.

2. *Dependent Claims 2-3, 5-6, 8-14, and 16-18*

Dependent claims 2-3, 5-6, 8-14, and 16-18, as discussed below, are anticipated. The court will consider dependent claims 4, 7 and 15 below under the section discussing obviousness.

a. *Claim 2*

Claim two of the '700 patent is expressly anticipated. It refers to the panel in claim one being "at least partially translucent." '700 patent, col. 11:14-15. The sheets in the '327 patent are illustrated and described as being translucent. '327 patent, col. 5:20-23. 3form's argument is unavailing that because the '327 patent provides that the sheets may also be colored, textured, frosted, opaque and/or contain fire-retardant additives and performance additives that translucency was not anticipated. The court finds that "translucent" sheets are expressly described and anticipated by the '327 patent, whatever other finishes the sheets may also have.

b. *Claim 3*

Claim three of the '700 patent is expressly anticipated. It refers to the laminate panel in claim one having "a thickness of between 0.25 and 2 inches." '700 patent, col. 11:16-17. The '327 patent anticipates the claimed range by explaining that "the thickness of product 10 may range from about 0.030 inch (0.7937 mm) to 2.0 inches (50.80 mm). However, thicker and thinner gauges are possible based on the press capabilities and starting material availability," '327 patent at col. 5:12-15, and "the polymeric sheets 16 and 18 may vary in thickness from about 0.004 inch (0.100 mm) to 1.0 inch (25.4)." *Id.*, col. 5:25-26. Prior art that discloses a range is anticipatory if it "describes the claimed range with sufficient specificity such that a reasonable fact finder could conclude that there is no reasonable difference in how the invention operates over the ranges." *Ineos USA LLC v. Berry Plastics Corp.*, 783 F.3d 865, 869 (Fed. Cir. 2015). The '327 patent discloses a range from 0.004 inch to 2.0 inches, and explains that differences in thickness are a

factor of press capability and starting material. The '700 patent range of 0.025 and 2 inches is encompassed entirely within the '327 patent ranges. The court finds that patent differences in the range of thickness sizes are a reflection of press capability and starting material and there is no reasonable difference in how the invention operates over the ranges.

c. Claim 5

Claim five of the '700 patent is expressly anticipated. It refers to the panel in claim one, “wherein at least one of the first and second extruded sheets comprise extruded polycarbonate having a thickness of between 0.1 inches and 0.50 inches.” ‘700 patent, col. 11:22-25. The '327 patent describes the use of polycarbonate, which 3form admits. 3form disputes that this claim is anticipated only because the thickness range described by the '327 patent does not perfectly match its own claim. However, as analyzed above for claim 3, the court finds that 3form’s range of thickness is within the ranges disclosed by Lumicor and that the patent differences in the range of thickness sizes is a reflection of press capability and starting material, with there being no reasonable difference in how the invention operates over the ranges.

d. Claim 6

Claim six of the '700 patent is expressly anticipated. It refers to the panel in claim one “wherein at least one of the first and second extruded sheets has a width and length dimensions of approximately 3’x5’, approximately 4’x8’, or approximately 5’x10’.” ‘700 patent, col. 11:26-29. The '327 patent describes several examples with 4’x8’ dimensions, i.e. “a bottom sheet of the preferred polymethylmethacrylate material that is . . . 48 inches wide, and 96 inches long,” ‘327 patent, col. 10:35-37. The '700 patent only requires *at least one* of the panels to have dimensions in the stated ranges, which the '327 patent does (4’x 8’). Furthermore, the '327 patent dimensions fall directly between the '700 patent ranges. When it is the patent at issue claiming a range, rather

than the prior art reference claiming a range as in claims 3 and 5 above, the patent at issue's "range is anticipated by a prior art reference if the reference discloses a point within the range." *Ineos USA*, 783 F.3d at 869. Moreover, there is nothing in the '700 patent to suggest that the size points are unique, that the size is critical to the invention or that the invention would work differently than when using the size disclosed in the prior art. *See id.* at 869-70. The '327 patent having disclosed a size point (4'x8' panels) within the range of the '700 patent sizes (3'x5', 4'x8', 5'x10' panels), the court finds that the '700 patent is anticipated by the '327 patent.

e. Claim 8

Claim eight of the '700 patent is expressly anticipated. It refers to the panel as in claim one, wherein "one or more compressible objects," such as "bamboo" and twigs, have a "natural diameter that is substantially compressed at a critical pressure between about 10 psi and about 100 psi." '700 patent, col. 11:34-39. The '327 patent discloses "the material to be fixated in the matrix 12 may also be made of . . . plant fiber and parts. Non-limiting examples are: . . . dried plant materials and fibers including long-stem grass, . . . bark and twigs from reed, bamboo, papyrus, banana, mulberry, and wicker," '327 patent, col. 8:25-35, that would lose their "aesthetically pleasing" aspect, *Id.*, col. 2:62-63, cols. 8-9, when compressed at pressures higher than 40 psi and up to 160 psi. *Id.*, col. 9:14-28. The parties do not dispute that bamboo and twigs are disclosed by the '327 patent, and it is undisputed by the parties that the critical pressure for twigs and reeds is about 75 psi, (Dkt. No. 57, p. 9), which falls directly within this range. The court notes that after describing "compressible objects" to mean three-dimensional objects that substantially deform at pressures up to 80–92 psi in the specification, the '700 patent is internally inconsistent when in claim eight it claims an object "is substantially compressed at a critical

pressure between about 10 psi and about 100 psi.”⁴ Nevertheless, because twigs and bamboo deform at pressures up to 80-92 psi, the court finds that their disclosure in the ‘327 patent anticipates claim eight of the ‘700 patent.

f. Claim 9

Claim nine of the ‘700 patent is inherently anticipated. It refers to the panel as in claim one, wherein there is uniformity in the viewable surface of the decorative panel “such that no lakes or air bubbles are exposed.” ‘700 patent, col. 11:40-43. The ‘327 patent specification states “[i]n order to produce products which are free of defects (such as air or gas bubbles entrapped in the matrix, voids in the matrix, or cracks in the matrix), it has been found to be critical to process the above-described basic lay-up sandwich according to the following operating parameters.” ‘327 patent, col. 8:60-col. 9:5. 3form does not dispute that defects *such as* gas and air bubbles were anticipated in the ‘327 patent, merely that the ‘327 patent did not aim to produce a panel free of any kind of defect whatever. This dispute is immaterial because 3form does not dispute that the ‘327 patent discloses the defect at issue, and because the ‘327 patent describes how this defect can be avoided, thus providing the court with clear and convincing evidence that it inherently anticipates the ‘700 patent.

g. Claim 10

Claim ten of the ‘700 patent is inherently anticipated. It refers to the panel as in claim one, “wherein the one critical pressure is less than about 92 psi for the one or more compressible objects.” ‘700 patent, col. 11:44-46. After the court’s construction of the term “compressible objects,” all of the decorative objects in the ‘700 patent must have a critical pressure of less than 92 psi to count as a “compressible object.” For this claim to be anticipated, however, the ‘327

⁴ By arguing that a “compressible object” should be construed to be an object that deforms at “a critical pressure of up to approximately 80-92 psi,” 3form must be found to have abandoned any claim that a compressible object has a different meaning in claim eight. *See* 3form’s Mot. Partial Summ. J., (Dkt. No. 45-1, p. 29).

patent is only required to disclose at least *one* compressible object with a critical pressure of less than 92 psi. 3form does not dispute that at least one of the decorative objects (twigs) in the ‘327 patent has a critical pressure of less than 92 psi, (Dkt. No. 57, p. 15), which is all that is required. Additionally, it is undisputed by the parties that the critical pressure for reeds is about 75 psi, *Id.* at 9, which makes a second anticipated object that compresses at less than 92 psi. Finally, the ‘327 patent describes numerous objects, softer than twigs, as examples that inherently compress at pressures less than 92 psi. ‘327 patent, col. 8:28-33 (such as “cellulose, cotton, linen, pulp, rag, dried plant materials and fibers including long-stem grass, leaves, petals . . .”). *Id.* at col. 8:4, 30-32. Because one or more qualifying objects is expressly disclosed, the court finds clear and convincing evidence that claim ten is inherently anticipated by the ‘327 patent.

h. Claim 11

Claim eleven of the ‘700 patent is inherently anticipated. It refers to the panel in claim ten, where a lower limit of 10 psi is identified and “compressible three-dimensional objects ordinarily appear to have an unnatural conformation when subjected to the critical pressure of between about 10 psi and 92 psi.” ‘700 patent, col. 11:47-51. As discussed in the court’s analysis of claim one, because the pressure at which any object ultimately deforms is an inherent property of the given object, the ‘327 patent disclosures of the same types of objects disclosed in the ‘700 patent (that necessarily fall within the psi range identified by this claim in the ‘700 patent) are inherent disclosures of the pressures that would deform the objects listed by the ‘700 patent. The ‘700 patent describes as examples of objects that compress at pressures between 10 psi and 92 psi “any natural or synthetic decorative materials, such as thatch, bamboo, tree or bush branches or stems, willow reed, leaves, beans (e.g. coffee beans), and so forth.” *Id.* at col. 7:12-16. The ‘327 patent describes as examples “wood veneer, paper, dried plant fibers and parts[, n]onlimiting examples

. . . [such as] long-stem grass, leaves, petals, bark and twigs from reed, bamboo, papyrus, banana, mulberry, and wicker.” ‘327 patent, col. 8:29-33. Each patent’s examples were nonlimiting and directed toward one or more class of objects (“any natural . . . decorative material,” “such as” and “so forth” in the ‘700 patent; “plant fibers and parts,” “[n]onlimiting examples” in the ‘327 patent), although exact matches were also present (bamboo, reed, leaves). Because each patent described natural, plant materials as a general class as well as one or more identical compressible objects, the court finds that the relevant pressures at which these objects deform are inherently disclosed and anticipated by the ‘327 patent.

i. Claim 12

Claim twelve is similarly inherently anticipated. It refers to the panel in claim ten (identifying a pressure to be applied not more than 92 psi), where the “unnatural appearance comprises a substantially flattened appearance for the one or more compressible three-dimensional objects when viewed through the first or second extruded sheet.” ‘700 patent, col. 11:52-col. 12:2. Again, only *one* object is required to have a critical pressure of less than 92 psi in this claim. Because the pressure at which any object ultimately deforms is an inherent property of the object, the ‘327 patent disclosures of three-dimensional objects that inherently compress at pressures less than 92 psi would necessarily have the same unnatural, substantially flattened appearance when viewed through the sheets if subjected to pressures greater than 92 psi. 3form “does not dispute that certain twigs or reeds [described in the ‘327 patent] may flatten if subjected to the critical pressure,” (Dkt. No. 57, p. 16). This is clear and convincing evidence that at least two sets of objects (twigs and reeds) disclosed by the ‘327 patent anticipate claim twelve of the ‘700 patent.

j. Claim 13

Claim thirteen of the ‘700 patent is expressly anticipated. It refers to the laminate sheet assembly used to create the panel recited in claim one, where the assembly “is subjected to the plurality of pressures in the thermosetting process” and consists of: (1) “the first extruded sheet,” (2) “one or more three-dimensional objects arranged on the first extruded sheet,” (3) “a second extruded sheet positioned about the one or more embedded objects, and where when so positioned, (4) “sufficient air escapes from between the embedded objects as pressure is increased, such that lakes or air bubbles are avoided” when the sheets are formed together. ‘700 patent, col. 12:3-19.

Figure 2 of the ‘327 patent illustrates the configuration of the laminate assembly, with a (1) bottom sheet 16, (2) decorative materials 14 arranged on the bottom sheet, and (3) a top sheet 18. ‘327 patent, sheet 1 of 2. 3form does not dispute this configuration, although it argues that the ‘327 patent primarily addresses two-dimensional objects rather than three-dimensional objects. The ‘700 patent, however, only requires *one* three-dimensional object and 3form does not dispute that at least some of the ‘327 patent objects are three-dimensional. Therefore, the court finds that limitations 1-3 in the ‘700 patent are anticipated by the ‘327 patent.

As for limitation (4), claim one of the ‘327 patent states that “a lay-up sandwich is formed comprised of said first flat sheet of polymeric material, said decorative object *which extends beyond at least one edge of both of said sheets of polymeric material*, and said second flat sheet of polymeric material.” ‘327 patent, col. 14:3-7 (emphasis added). The specification further states that the decorative object layer “*functions as a breather layer for air and gases to escape during the manufacturing process*,” *Id.*, col. 4:50-63 (emphasis added), and explains that the “decorative material 14 extends beyond the edges of polymeric sheets 16 and 18 . . . [to] provide[] an *escape*

path for air, water, vapor, and gasses generated during the pressing operation.” *Id.* at 63-67 (emphasis added). 3form admits that the layer of decorative objects as a whole acts as a “breather layer.” It disputes that the ‘327 patent *explains* that these resulting “escape paths” avoid creation of lakes and air bubbles when forming the panel. (Dkt. No. 57, p. 17.) The court finds this dispute to be immaterial. The ‘327 patent discloses both the problem and the placement that solves the problem. It discloses in several places that the placement of the decorative object layer is for the purpose of allowing trapped air and gases to escape. Its background discloses one of the problems solved by this invention is avoiding the creation of defects such as “air bubbles entrapped in the matrix, voids in the matrix, or cracks to the matrix.” ‘327 patent, col. 2:54-55. Because all it takes to *explain* that air bubbles and lakes in the finished product can be avoided by arranging the materials in the decorative layer such that trapped air and gas can escape during the pressing process is to put these two disclosures together, the court finds that claim thirteen is anticipated.

Claim four of the ‘327 patent also states that after “applying a pressure of about 40 psi . . . [the press is opened and pressure is removed] from the lay-up *sandwich to allow air and gases to escape from the lay-up sandwich*; [after which the press is closed and 160 psi is applied for a period of time such that] “said first and second . . . sheets melt together in the lay-up sandwich to provide a unitary product.” *Id.*, col. 15:27-37 (emphasis added). Claim four of the ‘327 patent applies to claim thirteen of the ‘700 patent because it explicitly addresses the “plurality of pressures” and “thermosetting process” noted therein. It is also worth noting that the parties referred to the step involving opening and closing the press to release air and gases as “bumping.” 3form’s expert admitted that the ‘327 patent teaches a method for eliminating “trapped air and gases,” although he also claims that not only were the bubble-free products produced by Lumicor’s experts without following the “bumping” method, but that Lumicor’s current

commercial manufacturing process similarly does not use the “bumping” method to produce defect-free products. This does not change the court’s analysis, except to note that in addition to being anticipated, arrangement of the decorative object layer as a method of eliminating defects caused by air and gas bubbles may also be obvious.

k. Claim 14

Claim fourteen of the ‘700 patent is expressly anticipated. It refers to the laminate sheet assembly recited in claim thirteen, which further has “a pressure pad positioned about one of the first and second extruded sheets.” ‘700 patent, col. 12:20-23. The use of pressure pads in an assembly to create laminate panels is described in significant detail in the ‘327 patent, ‘327 patent, col. 11:56-65, as well as in the Eckart patent ‘028, col. 4:53-59, and this fact was admitted by 3form’s expert. (Dkt. No. 57-2, p. 26). In detail, the ‘327 patent describes the pressure pads as follows: “First, an intermediate lay-up book is made consisting of the following sequence from top to bottom: (1) *four plies of canvas padding*; caul plate; (2) textured release paper or plate providing 0.005 inch relief; (3) 0.060 inch clear polymethylmethacrylate sheet (size 48 inches by 96 inches); (4) a layer of the delicate decorative material; (5) 0.060 inch clear polymethylmethacrylate sheet (size 48 inches by 96 inches); (6) textured release paper or plate providing 0.005 inch relief; (7) caul plate; and, (8) *four plies of canvas padding*.” ’327 patent, col. 11:56-65 (emphases added). 3form expert witness Jeffrey T. Gotro admitted this and its implication by refuting as incorrect a statement that “the Lumicor patent does not describe the use of pressure pads.” He stated that it does, because “the ‘327 patent specifically calls out ‘Four plies of canvas . . . placed below the bottom caul plate and above the top caul plate to evenly distribute the pressure and heat during the pressing/heating operation.’ (327 patent, column 10:62-

67).” (Dkt. No. 57-2, p. 26). This admission demonstrates that pressure pads were anticipated by the ‘327 patent.

l. Claim 16

Claim sixteen of the ‘700 patent is expressly anticipated. It refers to the laminate sheet assembly recited in claim thirteen, “wherein the first and second extruded sheets comprise polycarbonate.” ‘700 patent, col. 12:27-29. The ‘327 patent expressly discloses the use of polycarbonate, ‘327 patent, col. 7:22-24, and 3form admitted this fact in its response to claim five, which it incorporated in its response to claim 16. This is clear and convincing evidence that claim 16 is anticipated by the ‘327 patent.

m. Claim 17

Claim seventeen of the ‘700 patent is expressly anticipated. It refers to the panel recited in claim one, “wherein the one or more compressible objects comprise thatch or willow reed.” ‘700 patent, col. 12:30-33. The ‘327 patent expressly describes the use of “twigs from reed.” ‘327 patent, col. 8:32-33, and 3form admits this is the case. Because this claim requires only *one* object comprising either thatch *or* willow reed and 3form has admitted that the ‘327 patent contains at least one qualifying object, the court finds clear and convincing evidence that claim seventeen is anticipated. Lumicor, additionally, argues that “thatch is a generic word for reeds,” and thus the term “reed” is encompassed by the word “thatch.” 3form disputes that “thatch is a generic word for reeds.” The court takes judicial notice that “thatch” generically refers to reeds and similar plant material, and thus by referring to reeds in the ‘327 patent, thatch is also anticipated. *See Thatch, Oxford Dictionaries, http://www.oxforddictionaries.com/us/definition/american_english/thatch (last visited December 22, 2015).*

n. Claim 18

Claim eighteen is expressly anticipated as it refers to the panel recited in claim one, “wherein the one or more compressible objects comprise bamboo.” ‘700 patent, col. 12:33-35. After the court’s construction of “compressible objects” as three-dimensional objects that substantially deform at pressures up to 80–92 psi, the court notes that bamboo will not count as a “compressible object” for the ‘700 patent unless it has a critical pressure of less than 92 psi. The specific critical pressure of bamboo was not addressed by the parties. However, the ‘327 patent expressly discloses bamboo, ‘327 patent, col. 8: 28-33, (“the material to be fixated in the matrix 12 may also be made of . . . bamboo”) and this is not disputed by the parties. Therefore, the disclosure of bamboo is clear and convincing evidence that claim eighteen is anticipated by the ‘327 patent.

C. Obviousness

“A patent for a claimed invention may not be obtained . . . if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains.” 35 U.S.C. § 103. “The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *KSR Int’l Co. v. Teleflex*, 550 U.S. 398, 416 (2007). “When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability.” *Id.* at 417. On the other hand, when “the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be nonobvious.” *Id.* at 416.

“Whether a claimed invention would have been obvious is a question of law, based on factual determinations regarding the scope and content of the prior art, differences between the prior art and the claims at issue, the level of ordinary skill in the pertinent art, and any objective indicia of non-obviousness.” *Randall Mfg. v. Rea*, 733 F.3d 1355, 1362 (Fed. Cir. 2013) (citing *KSR Int’l Co.* at 406; *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17–18 (1966)).

1. Level of ordinary skill

Lumicor’s expert opined that “an individual with a Bachelor’s degree in materials science and engineering or related technology and 3 to 5 years of experience in the design, fabrication or manufacture of laminated resin panels, or equivalent work experience, would have ordinary skill in the relevant art at the time of filing of the subject patents.” (Dkt. No. 50-7, p. 9 ¶ 28.) Because both parties and their experts’ arguments relied on this level of expertise as constituting the level of ordinary skill in the pertinent art, so does the court.

2. Scope and content of prior art

Each party limited its argument on the relevant prior art to the ‘327 patent and the five Eckart patents; therefore, the court finds that the parties agree on the scope of the prior art and similarly limits its discussion to these patents. The parties disagree, however, on the content of the teachings of the prior art. Each party agrees that the use of PETG in the production of laminate panels is taught by the Eckart patents. 3form contends that the combination of the Eckart patents and the ‘327 patent do not teach the use of PETG with compressible objects, plurality of pressures, a critical pressure, or maintaining a substantially natural appearing conformation. However, the court has now construed each of these terms and found that they are all anticipated by the ‘327 patent; therefore, 3form’s contention that the ‘327 patent does not teach these concepts is rejected as immaterial. The ‘327 patent and the five Eckart patents contain all of the

content necessary to analyze whether 3form's combination of these familiar elements yields predictable results.

3. Obviousness of '700 patent as a whole

While Lumicor argued that its '327 patent, alone or with prior art, renders all of the asserted claims of the '700 patent obvious under 35 U.S.C. § 103, each of the '700 patent claims was not individually briefed as being obvious. Accordingly, the court declines to address whether claims 1-3, 5-6, 8-14, and 16-19 are obvious because it has already found them to be anticipated and therefore invalid. The remaining claims of the '700 patent, claims 4, 7, and 15, all deal with the use of polyethylene terephthalate glycol, generally known as PETG, which the court will now address.

a. Claim 4

Claim four is obvious. It recites the panel as in claim one, "wherein at least one of the first and second extruded sheets comprise extruded PETG having a thickness of between 0.1 inches and 0.50 inches." '700 patent, col. 11:18-21. As previously noted, the parties agree that the Eckart patents teach the use of PETG in the production of decorative laminate panels (with neither party arguing about thickness, although the court notes that the Eckart '028 patent describes PETG sheets in the relevant range with a thickness of 0.25 inches). Lumicor argues that this teaching makes it obvious to try combining the use of PETG material with the method for embedding decorative objects taught by the '327 patent, even if its patent did not list it as a preference. 3form argues that if it had been obvious, Lumicor would have included PETG in its patent, but it failed to do so because "the vast majority of the decorative materials taught in the '327 patent are not compressible," (Dkt. No. 57, p. 65), and thus Lumicor failed to notice the advantages of PETG's lower melting point when used with three-dimensional compressible objects. Thus, 3form argues

that the advantages of PETG were not obvious until its own invention and that the '327 patent teaches away from combining its method with the use of PETG.

The court disagrees. 3form's argument relies on its assertion that "the vast majority of the decorative materials taught in the '327 patent are not compressible." This is at odds with the opinion of 3form's expert (as well as the inherent law of nature) that all objects are compressible upon application of an appropriate amount of force. Therefore all of the objects taught by the '327 patent are "compressible" in the sense required by 3form's argument, even if neither they nor some of the objects listed in the '700 patent are "*compressible objects*" as construed by the court above. Rather, the court finds that a person of ordinary skill in the art would implement this predictable variation of material types, particularly because the design incentives to do so are explicit in the '327 patent, the point of which is to aesthetically embed a wide range of decorative objects within a variety of resin matrices by using a two-step process that includes a lower pressure first step to limit deformation of the decorative layers. The '700 patent merely combines old elements (PETG and the method anticipated by the '327 patent) "with no change in their respective functions . . . withdraw[ing] what already is known into the field of its monopoly and diminish[ing] the resources available to skillful" persons. *KSR Int'l*, 550 U.S. 398 at 416 (citing *Great Atlantic & Pacific Tea Co. v. Supermarket Equipment Corp.*, 340 U.S. 147, 152-153 (1950)). This is impermissible pursuant to § 103. Furthermore, "A reference does not teach away . . . if it merely expresses a general preference for an alternative invention but does not 'criticize, discredit, or otherwise discourage' investigation" into the claimed invention. *Depuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1327 (Fed. Cir. 2009). The expression of a preference for a group of resins that happens not to include PETG in the '327 patent does not teach away from the use of that resin.

c. Claim 7

Claim seven is obvious. It recites the panel as in claim one, “wherein at least one of the first and second extruded sheets comprises a copolyester that has a melting point between 180° F. and 230° F. in a pressure range of up to 40 psi.” ‘700 patent, col. 11:30-33. Eckart patent ‘028 describes temperature ranges for copolyester sheets with a melting point between 194° to 572° F., noting that “the optimal temperature for bonding the thermoplastic sheets will vary, for example, depending on the particular copolyester(s) employed and the thickness of the sheet materials used, and may be determined by those skilled in the art.” Eckart ‘028 patent, col. 4:20-28. Eckart patent ‘066 similarly describes PETG temperature melting ranges between 195° to 510° F. and notes that “[a] person of ordinary skill in the art can select [a temperature suitable to cause the PETG layers to bond together without causing decomposition, distortion, or other undesirable effects] without undue experimentation.” Eckart ‘066 patent, col. 6:66-68, col. 7:1-10. The ‘327 patent describes a pressure range of 40 psi. ‘327 patent, col. 9:14.

Lumicor’s argument is that the Eckart patents describe copolyester resins having melting points within the range of the ‘700 patent, and particularly that both patents identify that the appropriate temperature range for use for a particular resin material can be determined without undue experimentation by one ordinarily skilled in the art. Lumicor further argues that the parties do not disagree that the appropriate melting temperature for PETG would be obvious to one ordinarily skilled in the art, in part because 3form admitted that the Eckart ‘028 patent states it and because 3form did not dispute that PETG resins are sold with a data sheet that identifies its softening or melting temperatures. 3form’s argument is again that a person of ordinary skill in the art would not have “appreciated the use of PETG with compressible objects,” and reiterates that its argument is not that “the temperatures that would work with PETG would not be obvious,” but

that Lumicor failed to recognize the advantages of PETG's lower melting point for use with compressible objects. (Dkt. No. 57, p. 66).

The court disagrees with 3form for reasons similar to those regarding claim four, namely, that 3form cannot rely on compressibility as the nonobvious element that distinguishes this claim from the prior art. Because the temperatures at which PETG melts is either obvious based on data sheets that arrive with the manufactured material or because one ordinarily skilled in the art can determine the appropriate temperature of this copolyester without undue experimentation, the design incentives explicit in the '327 patent make it obvious to combine the use of the proper copolyester temperature at 40 psi to aesthetically embed a wide range of decorative objects within the resin matrix. The '700 patent's definition of "compressible objects" has been construed such that they are a subset of the set of all objects capable of compression, which means that the Eckart patents and their use of PETG with its associated temperatures along with the '327 patent and its associated teachings make 3form's known subset of "compressible objects" obvious. Therefore, compressibility as a distinction fails to distinguish claim seven as being nonobvious.

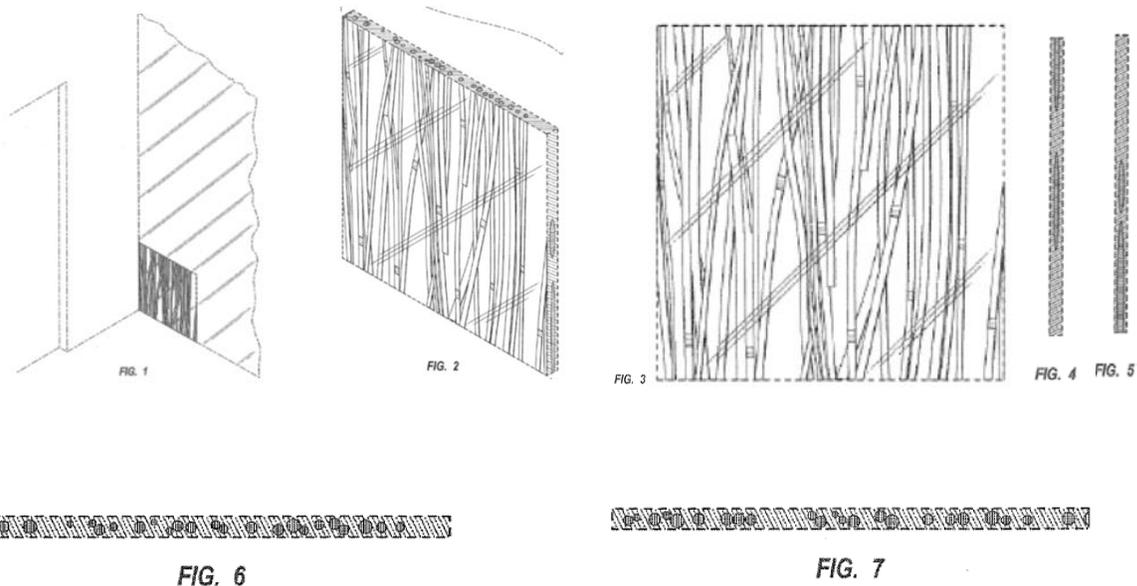
d. Claim 15

Claim fifteen is obvious. It refers to the "lamine sheet assembly as recited in claim 13, wherein the first and second extruded sheets comprise PETG." '700 patent, col. 12:23-25. As previously discussed, the only term in this claim that the '327 patent does not make obvious is the use of PETG as the laminate material, and it is undisputed that the Eckart patents teach the use of PETG. The parties argued this claim precisely the same as they argued claim four; therefore, the court finds this claim obvious and invalid for the reasons cited therein.

II. '068 PATENT

A. Claim Construction

The parties do not dispute the construction of the '068 patent. Because design patents are generally claimed as shown in drawings, claim construction for design patents does not typically require “a detailed verbal description of the claimed design, as is typically done in the case of utility patents,” although the decision to do so is left to the court’s discretion. *Egyptian Goddess, Inc. v. Swisa, Inc.*, 543 F.3d 665, 679 (Fed. Cir. 2008). Instead, claim construction for “a design is better represented by an illustration ‘than it could be by any description.’” *Id.* at 679 (quoting *Dobson v. Dornan*, 118 U.S. 10, 14 (1886)). The court accordingly construes the patent claims as an architectural panel with thatch reed design as shown below in figures 1-7 of the '068 design patent.



Having set forth the claimed design in the '068 patent, the court next turns to whether this design is met by the prior art.

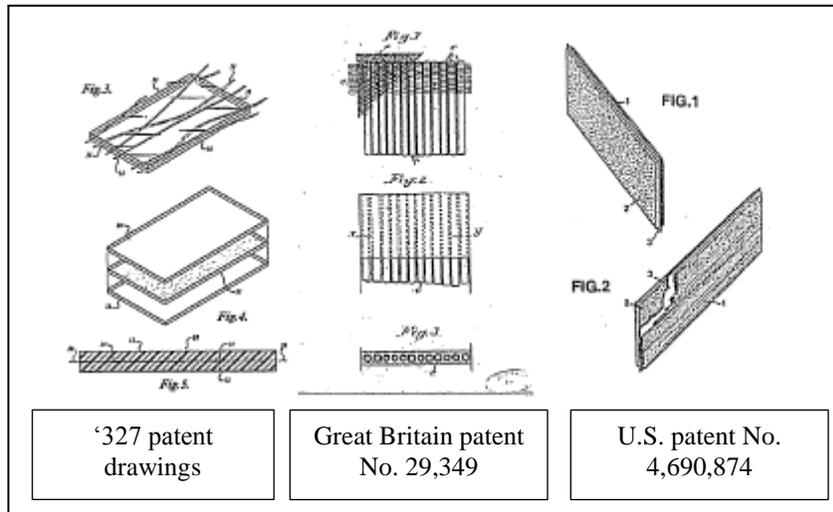
B. Obviousness

While Lumicor has argued that the '068 patent is invalid as obvious and under the on-sale bar, 35 U.S.C. § 102(b), the court finds that an analysis of the patent's obviousness in light of the prior art conclusively resolves the question of validity and as such, there is no need to address the on sale bar.

The elements of obviousness have been set forth in 35 U.S.C. § 103, *KSR Int'l Co.*, 550 U.S. at 406, 416-417, *Randall Mfg.*, 733 F.3d at 1362, and *Graham*, 383 U.S. at 1, 17-18 as previously discussed in subsection I(C), *supra*. In addition, "in the design patent context, the ultimate inquiry under section 103 is whether the claimed design would have been obvious to a designer of ordinary skill who designs articles of the type involved." *Durling v. Spectrum Furniture Co.*, 101 F.3d 100, 103 (Fed. Cir. 1996). Specifically, the court must determine whether a designer of ordinary skill "would have combined teachings of the prior art to create the same overall visual appearance as the claimed design." *Id.* As a prerequisite to combining the prior art designs for this assessment, the court must follow a two-step process: first, find a single reference in existence which has "basically the same" design characteristics as the claimed design, and second, once this reference is found, then other references may be used to modify the primary reference to create a design that has the same "overall visual appearance as the claimed design," *High Point Design, LLC v. Buyers Direct, Inc.*, 2013 U.S. App. Lexis 18836 (Fed. Cir. 2013), *aff'd in part, rev'd in part on other grounds*, 2015 U.S. App. Lexis 13621 (Fed. Cir. 2015), as long as such secondary references are related enough that the appearance of certain "ornamental features in one . . . suggest the application of those features to the other." *Durling*, 101 F.3d at 103. In addition, particularly for simple technologies, obviousness may be a matter of common sense and logic that may not require explicit teachings in published references or resort

to expert opinions. *Perfect Web Techs., Inc. v. InfoUSA, Inc.*, 587 F.3d 1324, 1329 (Fed. Cir. 2009).

Lumicor has proposed numerous alternatives as prior art that render the '068 patent obvious. Some of those include the following three patent drawings:



and others include Lumicor's embedded grass products produced pursuant to its '327 patent (Dkt. No. 48-1, ex. 1-3, 5-6), shown below:

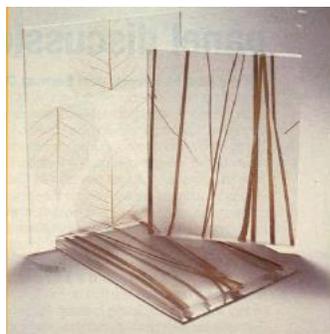


Exhibit 1

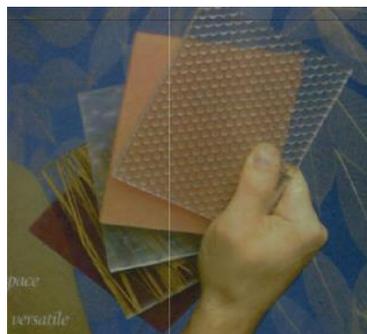


Exhibit 2



Exhibit 3



Exhibit 5



Exhibit 6

The court notes that 3form’s argument focused on drawings from the ‘327 patent which it criticized as dissimilar due to having “flat” grass with no nodes versus “cylindrical” reeds with nodes, and sparse density versus the more closely set density of the ‘068 design. The court dismisses this argument because 3form did not address the primary or secondary prior art references that are most similar to its ‘068 patent design. Because of the similarity in density, use of long-stemmed plant material, and organization in a generally parallel fashion with some overlap of plant stalks, the court determines that the single prior art reference with “basically the same” design as a primary reference for the ‘068 patent is Lumicor’s Exhibit 5 depicting embedded beach grass, as shown by its comparison to the ‘068 patent below:



Lumicor Exhibit 5



‘068 patent

Having thus determined the primary reference pursuant to *High Point Design, LLC*, the court notes that the most relevant secondary prior art reference that can be used to modify Lumicor Exhibit 5 to create a design with the same “overall visual appearance” as the ‘068 patent is Lumicor’s own ‘327 patent, which states that other materials such as twigs from reed may be used

instead of grass. ‘327 patent, col. 8:31-34. This statement is undisputed by 3form and is “related enough” pursuant to *Durling* because it expressly states, rather than merely suggests, that reeds may replace grass as the decorative, ornamental material. That this replacement would create a panel with the same “overall visual appearance” as the ‘068 patent is not difficult for the court to imagine. It would have the same overall visual appearance as 3form’s Varia Thatch product⁵ shown below, (Dkt. No. 48-4, p. 81), if each stalk of grass in Lumicor’s exhibit 5 were replaced with a stalk of reed in exactly the same position.



Lumicor Exhibit 5



3form Varia Thatch

As support for the court’s reasoning on this point, the court notes that 3form’s design expert, Caroline Lewis, agreed that if the grass in Lumicor’s Exhibit 6, shown below, were replaced with reeds having nodes, the panel that resulted would have the same design as shown in the ‘068 patent. (Q: “If you replaced the grass [in deposition exhibit 376, which is Lumicor Exhibit 6



Lumicor Exhibit 6



3form Varia Thatch

⁵ 3form undisputedly described the Varia Thatch product in a press release dated August 2002.

herein] with reeds having nodes, would you end up with the same design as that shown in the ‘068 patent? A: “I would say it would be close enough. If you substituted reeds, yes, and you know – yes.”) (Dkt. No. 48-2, p. 191:14-21). If this is true about Lumicor Exhibit 6, which is less dense than Lumicor Exhibit 5, the court finds it would be equally or more true about the denser Lumicor Exhibit 5.

Having identified the primary and secondary prior art relevant to the court’s analysis, it remains only to determine whether a designer of ordinary skill would be motivated to combine the teachings of the prior art to create a panel with the same “overall visual appearance as the claimed design” pursuant to *High Point Design, LLC*. The motivation to do so is contained within the text of the Lumicor ‘327 patent itself. The direction to try reeds--along with a large number of other natural and synthetic materials--as the ornamental layer of its lay-up sandwich could not be more clear in the ‘327 patent. 3form’s argument that such motivation would not exist is based on its expert’s opinion, which mistakes the standard. Lewis argues in terms of a designer choosing to purchase a reed-based product as part of an overall aesthetic design for a room or building, and then states that such a designer would not be motivated to substitute a grass product for a reed product that fits in with the overall impact of other design choices for such room or building. (Dkt. No. 57-4, p. 7). The *Durling* test, however, is directed to a “designer of ordinary skill who *designs articles of the type involved.*” 101 F.3d at 103 (emphasis added). The question is whether a “designer of interlayers,” as Lewis later clarifies in deposition testimony, rather than an “interior designer choosing panels,” would be motivated to substitute reed for grass. (Dkt. No. 48-2, p.189:6-7). For the very market reasons described by Lewis, the court concludes that a *designer of laminate architectural panels* would be motivated not to stop at grass panels, but to proceed to produce panels using a wide variety of decorative materials—including the explicitly disclosed

reed material—from among which *interior designers* could choose. Given that the prior art identifies predictable solutions to the market pressure to produce decorative panels with a wide variety of ornamental designs, a designer of such panels “has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense.” *KSR Int’l Co.*, 550 U.S. at 421. No prior art teaches away from combining the prior art in this way, as 3form’s expert essentially admitted. *See supra*. For the foregoing reasons, the court finds clear and convincing evidence that the ‘068 design patent was obvious in light of the prior art.

CONCLUSION

Because the court holds that the ‘700 and ‘068 patents are INVALID, the court GRANTS Lumicor’s Motion for Summary Judgment, (Dkt. No. 48), and DENIES 3form’s Motion for Partial Summary Judgment, (Dkt. No. 45).

SO ORDERED this 28nd day of December, 2015.

BY THE COURT:



Clark Waddoups
United States District Court Judge